The "Index Kewensis."

Index Kewensis Plantarum Phanerogamarum. Supplementum Quintum Nomina et Synonyma Omnium Generum et Specierum ab Initio Anni MDCCCCXI usque ad finem Anni MDCCCCXV Nonnulla Etiam Antea Edita Complectens. Ductu et Consilio D. Prain, confecerunt Herbarii Horti Regii Botanici Kewensis Curatores. Pp. iii + 277. (Oxonii: e Prelo Clarendoniano, 1921.) 76*s*. net.

THERE is probably no publication which is awaited with such interest and impatience as the issue from time to time of the supplements of the "Index Kewensis." Had it not been for the interruption of the war, the list of genera and species published, or the publication of which was ascertained, in the five years 1911–15, would doubtless have been available to botanists less than six years after the second date. This delay was inevitable, but it may be assumed that Supplement 6, comprising the years 1916–20, is well on the way and will be available for workers before another five years have passed. Some names published abroad during 1914 and 1915 were not noted in time for insertion in the present supplement, but will be included in the next.

A rough estimate shows that the present volume indexes more than 33,000 species-names, and a perusal of a few columns indicates the large number and great variety of the books and periodicals which have been searched during the compilation of the work, which, so far as one can judge by inspection and trial, maintains the high standard of accuracy and completeness of the parts previously issued. It is a great help to have a note of the date of publication of the book or periodical cited; the absence of this was a disadvantage in the earlier volumes. Similarly the practice adopted in the previous supplement of not attempting to distinguish between species and synonyms, often a matter of personal opinion, has again been followed, and the work maintains its character purely of an index. Attention is directed in the preface to the fuller geographical citations as compared with previous volumes; thus in American species the name of the State follows the indication U.S.A.; in Chinese, the name of the province, and so on; this additional information is a distinct gain.

To the botanist a perusal of the columns is of special interest as marking the progress of botanical exploration generally; thus the large number of genera and species quoted as from China, especially the south-western provinces and the Philippine Islands, suggests the important work being carried on in those areas by British and American collectors and investigators. The progress of standard floristic works, such as the "Flora of Tropical Africa," or series of monographs, such as the "Pflanzenreich," is also recorded in these cases under the genera of families specially concerned.

The numerous entries under certain well-known European genera, such as Hieracium, which fills ten pages, and Rubus, which fills eight, recall the intensive study of species and their segregation, which will doubtless continue to supply material for future supplements. The many unwieldy trivial names, sometimes running into eight syllables, indicate the difficulty of finding new names for species when these run into the hundreds in individual genera. The occasional appearance of names from periodicals antedating the special period shows the great difficulty of sweeping up all the literature. Thus a harvest of new names has been supplied by Hegetschweiler's "Flora der Schweiz" (1839), previously overlooked, and the recognition of Philip Miller's "Abridged Dictionary of Gardening" (edition of 1754), in which many genera were carefully defined, necessitates the reference of some well-known genera to Miller instead of to later authorities.

In the method of citation the recommendation of the latest International Code of Rules is followed in the use of the capital letter only for species-names derived from a personal or a generic name. In the manner of production, from the irreproachable Latin preface onwards, the volume upholds the credit of the Oxford University Press.

Mental Measurement.

(1) *The Essentials of Mental Measurement.* By Dr. W. Brown and Prof. G. H. Thomson. (The Cambridge Psychological Library.) Pp. x + 216. (Cambridge: At the University Press, 1921.) 21*s*. net.

(2) *How to Measure.* By Prof. G. M. Wilson and Prof. K. J. Hoke. Pp. vii + 285. (New York: The Macmillan Company; London: Macmillan and Co., Ltd., 1920.) 12*s*. net.

(1) ELEVEN years ago Dr. William Brown published as a thesis for his doctorate a suggestive and original monograph on the use of the theory of correlation in psychology. Later, by adding one or two chapters of introduction and two or three others on the so-called psychophysical methods, he expanded this monograph into a compact manual entitled "The Essentials of Mental Measurement." Now, in turn, after another and a longer interval, the manual itself has developed into a guinea royal-octavo volume, extensively enlarged and exhaustively revised.

The larger additions consist for the most part of a detailed series of mathematical arguments, examining what is termed the "hierarchical theory," and bringing

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together the substance of important controversial papers on this subject published from time to time by Prof. Godfrey Thomson during the war. There are, however, several other new insertions. There is a long and lucid chapter on the elementary theory of probability and a shorter and more abstruse one upon skewness and heterogeneity in psychophysical data—a chapter in which, as indeed all through the volume, Prof. Karl Pearson's views and manner of approach are plainly reflected.

In the present stage of its development the book is an interesting though composite production. From the title one would expect some description of the recent methods of individual measurement—methods for assessing intelligence and for estimating the capacities and attainments of the mind. Instead we have critical prolegomena upon statistical adjuncts, and the writers have in view, not so much general mental testing, as the testing of the mental tests themselves. The book opens with a general chapter headed " Mental Measurement," which seems to promise the broad survey characteristic of a general text-book, but most of the pages in the second portion of the book, and most of the paragraphs in its two independent prefaces, are simply brilliant contributions to a special controversy. The three doctrines chiefly attacked are those connected with the name of Prof. Spearman. It is, however, highly satisfactory to learn that Dr. Brown finds elements of truth in the views that he disputes, and feels himself to be " more convinced than ever that the work of Prof. Spearman's correlational psychology is epoch-making in its significance."

The heterogeneous character of the volume has been severely criticised by at least one eminent statistician.[1] But perhaps the best defence to this criticism is the simple circumstance that at present the whole subject of mental measurement has itself arrived at a somewhat heterogeneous stage. In any case, the mixed and controversial quality of the book does not lighten or alleviate the difficulties of a topic already intrinsically perplexing. The treatment is of necessity technical. From first to last the pages of the book are dotted with algebraic formulæ and symbols, and the description of methods is at times extremely condensed. Indeed, to any but a mathematician little but the general gist of discussion can at times be comprehensible. However, a third section to the book is promised, summarising in non-mathematical language both theories and results for the general reader.

Meanwhile no research student who thinks of employing the statistical methods here described and discussed can ignore this treatise. It is, indeed, considering the intricacy of the subject, a work of great lucidity and compression, and, whether the criticisms urged against previous workers are insuperable or not, objections to their views certainly required statement at length and in detail.

(2) The volume by Prof. Wilson and Prof. Hoke is altogether different from that by Dr. Brown and Prof. Thomson. It is written for American teachers, and describes in simple phraseology some of the methods in vogue for individual measurement. The chapters consist mainly of an account of the various tests recently standardised for measuring attainments in the chief subjects of the school curriculum—reading, writing, drawing, arithmetic, and the like. A few pages are added on the measurement of intelligence and on statistical methods and terms. The book is published in the hope of encouraging the teachers themselves to apply to their classes the diagnostic methods that hitherto, for the most part, have been handled by psychologists alone. It is one of the many popular volumes that have appeared and are likely to appear upon the practical educational applications of these psychological methods.

Statistical Method.

A First Course in Statistics. By D. C. Jones. (Bell's Mathematical Series.) Pp. ix + 286. (London: G. Bell and Sons, Ltd., 1921.) 15*s.* net.

THE needs of the student of social statistics form the prime consideration in this " First Course," but, as the author states, illustrations have been drawn from all sources, and it will serve very well as a brief introduction for students in other branches of science. The volume has been divided into two parts. Part I. is elementary in character, and in the main can be followed by a reader with little mathematical knowledge. The notions of measurement and of variables are explained, and the conceptions of the frequency distribution, of classification and tabulation are briefly discussed, and a couple of chapters follow on the simpler forms of average and the weighted mean. Dispersion comes next, accompanied by a more detailed discussion of the frequency distribution. The following chapter is on graphs, an unusual feature in this chapter being the inclusion of sections on interpolation and on supply and demand curves. A treatment of the correlation of two variables on simple lines concludes the first part of the book. Part II., though it begins simply, is of a more advanced mathematical character. The first few chapters are on probability, sampling, and probable errors. Prof. Pearson's generalised probability curves are then dealt with, and the method of moments; two chapters on the normal curve and the

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[1] G. U. Yule, *Brit. Journ. Psych.*, vol. 12, pp. 100-107—an article which is itself of much importance as a contribution to the points at issue.

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